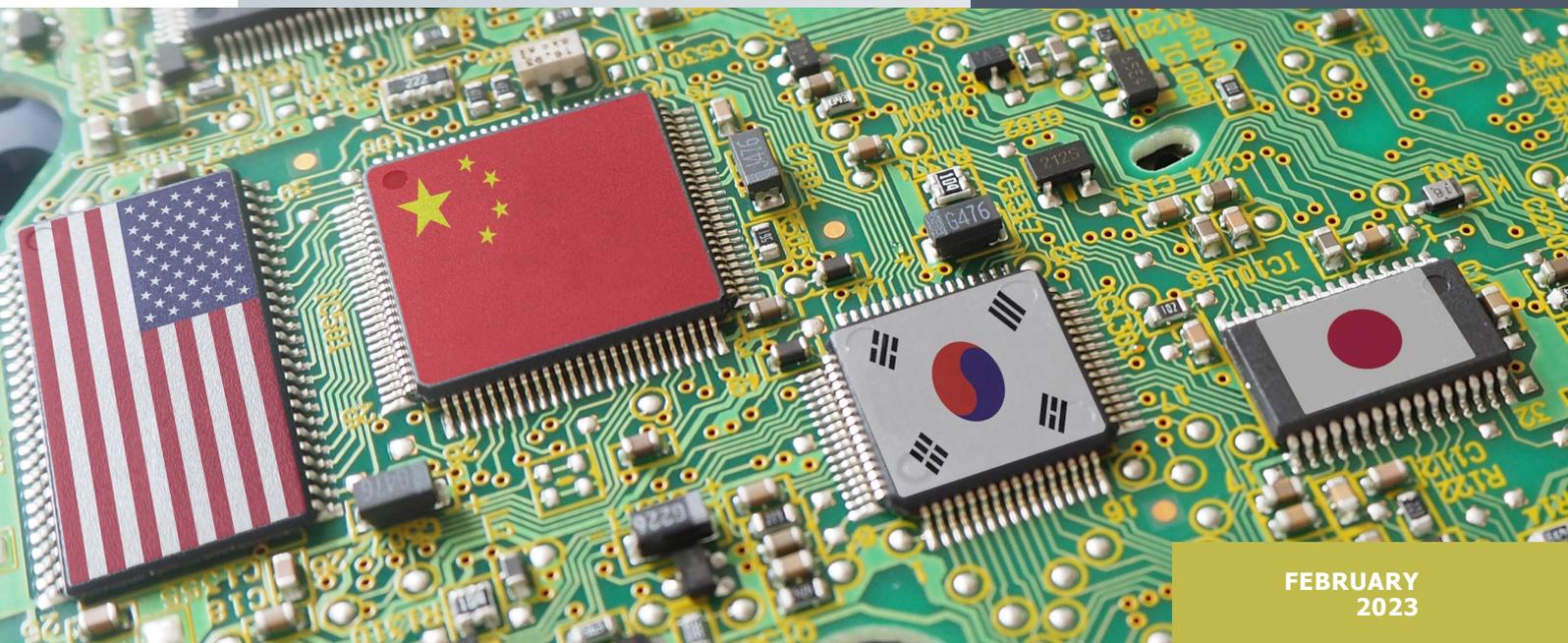


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South Korea and IPEF: Rationale, Objectives and the Implications for Partners and Neighbors



Jaewoo CHOO

Center for Asian
Studies

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Abstract

America's strategic initiatives against China will continue to unfold. The White House and US Congress will try to "outhawk" each other until presidential elections in Taiwan and the United States end in 2024. In its strategic decision-making, South Korea will continue to be stuck between the United States and China; as an ally of the United States and as a state that is economically dependent on China, South Korea's dilemma is self-evident. As the US executive and legislative branches intensify their hawkish approaches to China, some of the side-effects of their rivalry will undermine the confidence of allies, as well as partners in the US. Neither actor will give much consideration to the possible damage they will inflict on the strategic interests of allies. Internal executive and legislative decisions are not necessarily confined to domestic political interests; the impact can be international. The allies must therefore make the White House and US legislature aware of the external consequences of their decisions and behavior. This is where, this article argues, allies such as South Korea and France must cooperate within the confines of US-led strategic initiatives.

Less than two weeks into the new leadership in May 2022, newly elected President Yoon announced that his nation was joining the Indo-Pacific Economic Framework (IPEF). He outlined his foreign policy in the February issue of *Foreign Affairs*, stating that its main goal was to make South Korea a "global pivotal state". His foreign policy is aligned with that of the Biden administration. Both foreign policies aim to preserve a rules-based liberal international order and to strengthen the alliance. Driven by these common goals, the Yoon government has also come forward to support other US-led strategic initiatives, including "Chip 4" (what the Americans call "Fab 4"), a grouping of major semiconductor manufacturers, namely the United States, South Korea, Japan and Taiwan.

The IPEF was introduced to lay the pre-decisional groundwork for a future economic order in the Indo-Pacific, at least at the regional level, and with hopes to expand globally. The four pillars of IPEF are supply-chain resilience, trade, clean economy, transparency and anti-corruption. South Korea can contribute to two of the pillars in particular, especially to supply-chain resilience, which deeply involves the high-end technology components critical to the sustainability of the Fourth Industrial Revolution. South Korea is one of the key manufacturers of these components, including semiconductors, panel display, and electronic vehicle (EV) batteries. It is also an important player in the area of Pillar III, the clean economy, being one of the key builders of small modular nuclear

reactors (SMRs). In sum, rebuilding a resilient global supply chain is almost impossible without South Korea's full commitment, while the country can contribute strongly to a clean economy.

However, the US White House and Congress have not fully considered Korean factors when legislating on bills concerning the IPEF pillars. The Inflation Reduction Act (IRA), for example, excluded South Korea's domestically produced EV batteries from the US government's subsidy programs. Few allies, if any, currently produce EV batteries on American soil. We can expect Congress to pass many more laws like the IRA in the next few years as the administration and legislature compete in taking hard measures against China. This is where allies such as South Korea and France must cooperate to restrain the White House and Congress from taking extreme measures that favor the US and from omitting to consider the interests of countries with which the United States must cooperate to ensure its strategic initiatives succeed.

This article suggests, first, that South Korea and France must find ways to cooperate to "manage" the United States. Second, it argues that South Korea should take the lead in building a collective mechanism to manage and control the US, which must be made more aware of the external effects of its legislation. Third, it suggests that South Korea and France share information with respect to developments around shaping the IPEF in the United States. Strong communication informing allies and friends about America's policy decisions at the legislative and executive levels is required. Lastly, South Korea and France must work together for one goal: to ensure that allies are not negatively affected by the growing protectionism of the United States. America's export control regulations should be benign to the interests of its allies. It should also be open and inclusive toward them. This will benefit America's own defense and technology interests and ease its burden in supplying weapons and ammunition for foreign contingencies. Export control regulation is a sensitive matter; the confidence and trust that are essential can be ensured through cooperation and exchanges. South Korea and France must work together to effectively restrain the United States from further drifting toward protectionism.

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Introduction

Less than two weeks into his presidency, in May 2022, South Korea's President Yoon Suk-yeol received a state visit from US President Joe Biden. The joint statement following the summit meeting on May 21 stated: "The two Presidents recognize the importance of maintaining a free and open Indo-Pacific that is prosperous and peaceful and agree to strengthen cooperation across the region. In this regard, President Biden shares his support for President Yoon's initiative to formulate ROK's own Indo-Pacific strategy framework."¹ In the wake of the summit, President Yoon attended the first summit meeting of the Indo-Pacific Economic Framework (IPEF) on May 23. At the Bali G-20 summit in November, he outlined his government's work on an Indo-Pacific strategy. On December 28, the Yoon government released an official document outlining the strategy.

South Korea is now ready to become an active player in many US-led strategic initiatives. It wants to contribute constructively to the IPEF and other initiatives. In the so-called "Chip 4" (or "Fab 4" in American terms), an informal grouping of four key semiconductor producers (the US, Japan, South Korea, and Taiwan), South Korea is committed to building a resilient supply chain in the semiconductor industry, through close collaboration. It is also committed to laying a foundation for the IPEF. Although the IPEF is unlikely to become legally binding in the way of a free-trade agreement (FTA) or other arrangements of that kind, it is hoped that it will be a framework to guide the practice of future supply-chain and business transactions. It also aims to enhance transparency, improve the investment climate, and boost flows of commerce in a fair and accountable way by implementing innovative and strengthened measures against corruption and tax evasion. Nevertheless, the IPEF provides South Korea with a golden opportunity to enhance its leverage and international status as a "rule maker" should it find a successful way to constructively cooperate with allies and friends such as France. Given the success of the IPEF, South Korea can likewise disregard threats of Chinese coercion, in large part due to China's fear of isolation. China still heavily relies on external resources for high-end technologies, and now it is feeling the pressure from US maneuvers domestically and externally with respect to rebuilding a resilient supply chain. China wants to prevent South Korea from tilting too far toward the United States, but to no avail because of President Yoon's foreign policy based on values and freedom.

1. "United States-Republic of Korea Leaders' Joint Statement," The White House, May 21, 2022, available at : www.whitehouse.gov.

This article will first analyze the reasons why China opposes South Korea joining the strategy, given that the transition will be aided by the pro-US posture of the incoming government in South Korea. The article will also explain the imperatives for South Korea to join the strategy, and reasons that will prompt it to become the core of the strategy. It will conclude with some remarks on how the United States can encourage South Korea's commitment, and vice versa.

Distrustful Chinese Multilateralism and South Korea's Experiences

Since it started engaging in regional multilateralism in the 1990s when it joined the Asia-Pacific Economic Cooperation (APEC, 1993), ASEAN Regional Forum (ARF, 1994), Shanghai-Five (1996), ASEAN+1, and ASEAN+3 (1998), China has been supportive of regional multilateral cooperative frameworks conducive to its own development goals and therefore its strategic interests.² It has remained an active player at all institutional levels – global, regional and subregional – where multilateralism is practiced.³

At each level, China has set its own definition and rules for practicing multilateralism. At the global level, for instance, if multilateralism is premised on the preservation of the existing international order as in the World Trade Organization (WTO), it fully embraces the global standard of definition and rules. It has displayed a full commitment to and respect for the mandates of global multilateral institutions. It officially abides by the duties and responsibilities of the member states. It fully participates in the procedures and processes. It tries its best to fulfill the eligibility requirements and conditions to maintain its membership. It respects the legalist nature of these multilateral institutions. It is committed to the institution's democratic practice based on majority rule. China's full access to global multilateral institutions has allowed China to integrate into the liberal international order that is founded on respect for universal values, legal ground rules, and democratic norms of practice.

At the regional and subregional level, however, China prefers a multilateralism founded on its own terms. It has long insisted that regional multilateralism must possess the character of openness and inclusiveness in membership and looseness in regulation, and therefore not be legally binding. This is the reason why China's multilateralism is network-based, as evidenced in the most recent initiative (the Belt and Road Initiative - BRI). Although China highly values the inclusiveness of membership in regional multilateral bodies that it initiates, in practice, it shows a degree of

2. S. S. Kim, "China's International Organizational Behavior," in Thomas W. Robinson & Shambaugh, David (Eds.), *Chinese Foreign Policy: Theory and Practice*, New York: Clarendon Press, 1994, pp. 401-434.

3. A. I. Johnston, *Social States: China in International Institutions, 1980-2000*, Princeton: Princeton University Press, 2014.

contradiction with the exclusion of the United States. There were some cases in which Chinese initiatives did not need US participation (e.g. SCO, ASEAN+3, CICA), while, in other cases, the United States opposed membership of the Asian Infrastructure Investment Bank (AIIB).⁴

In sum, China has long pursued regional multilateral frameworks that “disfavor” the United States.⁵ In contrast, it has welcomed South Korea’s participation in all of its regional initiatives. There is no record of Chinese opposition. Sometimes, as in the case of the AIIB, China proactively pressed South Korea to join. For the record, China hardly opposed South Korea committing to US-led regional network initiatives until the introduction of the Indo-Pacific strategy. From China’s perspective, the Indo-Pacific strategy will become a full-fledged force detrimental to its national security if and when South Korea fully joins it.

However, South Korea, especially during Moon Jae-in’s presidency (2017-2022), had strong reservations about fully committing to the Indo-Pacific strategy. It was wary of the military and defense aspects of the strategy. It has asserted in public that the strategy should not be aimed at China or exclude it. Its hesitancy arises for two reasons: China’s opposition and its fear of a possible Chinese retaliatory response if and when it fully joins the strategy. In the end, South Korea refraining from engaging in any military commitment would only serve China’s interests.

Furthermore, South Korea’s reservations demonstrate China’s growing influence over its decision-making. The lesson that South Korea experienced from China’s coercive response to the US Terminal High Altitude Area Defense (THAAD) deployment decision in 2016 further polarized South Korean society and decision-makers.⁶ South Korea often finds itself in a dilemma between the United States and China. Before the THAAD incident, China was not a factor in South Korea’s decision-making

4. Wu, Guoguang and H. Lansdowne, “International multilateralism with Chinese characteristics: attitude changes, policy imperatives, and regional impacts”, in Wu, Guoguang and H. Lansdowne, *China Turns to Multilateralism: Foreign policy and regional security*, New York: Routledge, 2007, pp. 1-16.

5. E. Colby, *Strategy of Denial: American Defense in an Age of Great Power Conflict*, New Haven: Yale University Press, 2021.

6. The US decision to deploy THAAD in defense against North Korea’s nuclear threats and China’s public opposition to one of its military bases in South Korea provoked a punitive economic reaction by China. Since the second half of 2016, China has (“unofficially”, in its own words) banned group tours to South Korea and import of South Korean entertainment and raised the bar for non-tariff measures against South Korean companies in China. These measures are still effective to date, and the United States has yet to make any attempt to resolve the issue to compensate for the damages its ally has suffered at the cost of its own strategic interest. The lackluster efforts of the US in defending its ally’s interests against a rival regional power have diminished the confidence of allies and partners in the United States. For an analysis on similar incidents and consequences, see R. Hass, *Stronger: Adapting America’s China Strategy in an Age of Competitive Interdependence*, New Haven: Yale University Press, 2021. For a recent view on the THAAD incident’s impact on South Korea-China relations, see J. Choo, “No turning back to pre-THAAD conflict for 30 year-old Korea-China relationship”, *Korea Times*, August 1, 2022.

on defense cooperation with its ally. Since then, however, it has become alert to possible retaliation by China if it chooses to accommodate America's strategic interests, let alone its own interests.

South Korea's subservient behavior is facilitating China's extension of influence to the military front. It has allowed China to make illegal intrusions into South Korean waters and airspace, e.g. its EEZ (Exclusive Economic Zone) and KADIZ (Korea's Air Defense Identification Zone), at its own will and discretion.⁷ South Korea has thus far shown great restraint in counterchallenging China's military provocations. China's claim that international norms are not international law has not provoked any South Korean objection. South Korea's maritime and aerial security vulnerabilities are exposed, and its territorial sovereignty is under threat from China. But, if South Korea realizes that it cannot defend its territorial sovereignty on its own, China's continual military provocations will eventually compel it to commit fully to the Indo-Pacific strategy. In other words, China's military rise, driven by its economic prowess, will shift South Korea's strategic ambiguity toward strategic clarity.

7. M. Trent, *Over the Line: The Implications of China's ADIZ Intrusions in Northeast Asia*, Federation of American Scientists, 2020, p. 15; and C. Min Lee and K. Botto, *Korea Net Assessment: Politicized Security and Unchanging Strategic Realities*, Washington: Carnegie Endowment for International Peace, 2020, pp. 62-64.

China's Distaste for IPEF⁸

China has been persistent in its criticism of the Indo-Pacific strategy as a new version of America's containment policy. It has also been consistent in insisting that South Korea should not be part of it. China's approach to South Korea has been excessive in that its warning was made to presidential candidates as well as to the president-elect following the presidential election in March. Conversely, China's warning messages to South Korea could be interpreted as a sign that China was getting anxious about the prospect of the realization of America's Indo-Pacific strategy.

Its anxiety was intensified when the United States officially launched the Indo-Pacific Economic Framework (IPEF) on May 23 in Tokyo, Japan. At a press conference held the day before, Chinese Foreign Minister Wang Yi not only expressed his skepticism about the framework's future success, but also was highly critical of its intent and goals. He framed the economic subset of the strategy as "an American attempt to create regional division and confrontation instead of cooperation." He also called on "the United States to refrain from politicizing regional economic cooperation," and showed no hesitation in warning that "any future regional framework exclusive of China" would eventually fail.⁹ Since November 2017, when former US President Donald Trump put forward a vision of a free and open Indo-Pacific and made it a top priority of his administration, Beijing has remained persistent with the claim of America's containment policy. It sees it as a US attempt to replicate a smaller NATO in Asia. China ratcheted up its opposition when the US State Department released its report, "A Free and Open Indo-Pacific: Advancing a Shared Vision" (Bureau of East Asia and the Pacific Affairs, 2019).

Starting this year, China is filing its complaints against countries in a different manner. It launched a barrage of warnings against South Korea before and after its presidential election in March 2022. On two occasions, the media outlet of the Chinese Communist Party (CCP), *Huanqiu Shibao* (*Global Times*), employed its editorial to convey warning messages to all presidential candidates, as well as the president-elect. This never happened during previous South Korean presidential elections. On March 9, the day before the election, an editorial with the heading "China-S. Korea ties must

8. The content of this section was drawn from the author's "China's strategic distaste for Korea in the Indo-Pacific strategy: Major concerns and countermeasures", *Asian Politics & Policy*, January 2023, pp. 3-5.

9. "US may lack 'ability to lead IPEF, reconcile interests' with members", *Global Times*, May 23, 2022.

move forward, not backward” sought to alert the candidates to the true purpose of the United States’ Indo-Pacific strategy. Claiming that the US was either pressing or luring South Korea with a promise of the benefits that would arise if it joined the US against China, the editorial said Seoul should be aware of the consequences of falling into Washington’s trap; one consequence would be Seoul being placed on the frontline of geopolitical competition in northeast Asia, exposing itself to possible collateral damage. A strategic dichotomy, as in “pro-China” or “pro-US”, would not serve Seoul’s strategic interests, the editorial emphasized.¹⁰

Following the election, a new *Huanqiu Shibao* editorial issued another “benign” warning to the president-elect. Recognizant of his foreign policy priority in rebuilding the alliance with the United States, and expressing its understanding of South Korea’s interest in the alliance, the CCP’s mouthpiece stated: “Beijing-Seoul relations should not be seen as an appendix of Washington-Seoul relations.” It also cautioned against the belief that China would only respect South Korea because it had a good relationship with the US, stating: “Beijing respects Seoul not for the sake of the South Korea-US alliance or any other reason. The respect is only based on the mutual understanding between China and South Korea on each other’s core interests and major concerns.” In the end, the gist of the message was to warn Seoul not to gamble between Washington and Beijing.¹¹

The last official Chinese warning on South Korea’s prospective commitment to the Indo-Pacific Framework came at a virtual meeting between the two foreign ministers on May 16. It was the day when President Yoon made South Korean commitment official. Later, in the evening, the Chinese foreign minister was straightforward in his warning. He expressed his opposition by emphasizing the negative results of “decoupling” and “cutting off (supply) chains” with China. He basically demanded that his South Korean counterpart maintain the stability and smoothness of the global industrial and supply chains by reconsidering the president’s decision to join the framework.¹²

China opposes South Korea fully committing to US-led networks for three main reasons, which reflect China’s growing anxiety and apprehension over South Korea’s changing strategic values. First, South Korea’s sheer geographical location stymies China’s maritime strategy. South Korea is located at the heart of China’s maritime defense perimeter (nine-dash-line and the first island chain). Regardless of how efficient China’s A2AD (Anti-Access/Area Denial) tactics may be in defending the

10. “China-S. Korea Ties Must Move Forward, Not Backward”, *Global Times*, March 9, 2022.

11. “China-South Korea Ties Need ‘Respect,’ and it Must Be ‘Mutual’”, *Global Times*, March 11, 2022.

12. “South Korea to Join US-Led Economic Initiative: Presidential Office,” *Korea Herald*, May 18, 2022.

area, the mere presence of the USFK, US military installations, and the ROK-US alliance there renders them ineffective. The US is able to (counter-)attack China within the Chinese military perimeter due to the US defense posture's geographic placement on the Korean Peninsula. Furthermore, as the crow flies, the US military bases in Korea are among the most effective and efficient defense posts outside of the Taiwan Strait.¹³

The second reason pertains to the fact that South Korea has by far the largest readily available combat forces in the Indo-Pacific region. It has no constitutional constraints like Japan, and therefore is free to integrate in US military operations. The only constraint would be the attitude of the South Korean public, if they were not convinced or persuaded by their government. South Korea's strategic and military portfolio will perfect the Indo-Pacific security schemes as envisioned. This is why China will do its utmost to prevent South Korea from fully joining the Indo-Pacific framework.

The third reason has to do with China's own economic interests. South Korea is far advanced in several technologies, including semiconductors. China's dependence on South Korea in these areas is critical to China's sustainable development aspirations in the era of the "Fourth Industrial Revolution." Any kind of disruption in the supply chain of these technologies would damage China's Fourth Industrial Revolution ambitions.

In other words, Beijing seeks to uphold its cooperative economic ties with Seoul. It cannot afford to lose South Korea in its supply chains. Of all the critical ingredients to its sustainable economic development, disruption in South Korea's supply of semiconductors, for instance, would damage the foundation of China's aspiration to become a leading force in the 5G industry as well as Industry 4.0, as prescribed by "Made in China 2025" and "China Digital Transformation Strategies". It would also hinder China's goal to become a strong and modern socialist state in 2049 after completing its socialist modernization by 2035.

For this reason, South Korea as a major force in high-tech industry is vital enough to affect the outcomes of China's socialist modernization narratives. In this vein, unlike in the case of THAAD in 2016, Seoul cannot be subject to Beijing's punitive measures to prevent it from veering off to the Indo-Pacific Framework. In other words, South Korea's commitment to IPEF places China in a strategic dilemma. If it employs sanctions, it will expose its high-tech industry's vulnerability and sustainable economic capability.

13. US Air Force bases in Korea are 800 nm from Taiwan, 1,400 nm from Misawa Air Base in Japan and 1,500 nm from Guam. See C. E. Haselden, Jr., "The Effects of Korean Unification on the US Military Presence in Northeast Asia", Carlisle: US Army War College, 2002, p. 127.

If sanctions are ruled out so as to avoid such consequences,¹⁴ this will strengthen South Korea's leverage. Since it is China that is in a dilemma, South Korea must free itself from its old habit of preoccupying itself with China's possible retaliations in its decision-making on cooperation with the United States. South Korea is now in the USA's good hands when it comes to maximizing its interests by collaborating with its allies and like-minded states.

14. "Wang Yi: IPEF Unlikely to Succeed, For it Serves US' Own Interests", *Global Times*, September 7, 2022.

South Korea's Leverages

India hosted the special negotiating round for the IPEF in New Delhi from February 8 to 11. The round covered IPEF Pillars II (supply chains), III (clean economy), and IV (fair economy).¹⁵

When it comes to rebuilding a resilient supply chain, the focus will be on those industries where South Korea is one of the critical suppliers, for two reasons: its manufacturing capacity and its predominant world market share. These industries include semiconductors, electric vehicle batteries, display panels, and small module reactors (SMRs). South Korea's position should empower it with strong negotiating leverage in rebuilding a resilient supply chain. Unfortunately, it has not been able to capitalize on the opportunity to maximize its national interest nor to minimize damages to its interest inflicted by other players' domestic political actions. One salient example was the US passing of the Inflation Reduction Act, whereby South Korea's electric vehicle batteries were excluded from the US government's subsidization programs.

This section will argue that South Korea should be a more proactive player in shaping global supply resilience, particularly in the aforementioned industrial areas. The focus of supply resilience, for now, is on these industries, and South Korea can exercise much leverage as one of the dominating manufacturing forces.

15. The first ministerial meetings in September 2022 released a consensus on ministerial statements for each of the four IPEF pillars. Per statement, "In the Trade Pillar (Pillar I), the IPEF partners will seek high-standard provisions in areas that are foundational to resilient, sustainable, and inclusive economic growth, including labor, environment, digital economy, agriculture, transparency and good regulatory practices, competition, inclusivity, trade facilitation, and technical assistance and economic development. In the Supply Chains Pillar (Pillar II), the countries will seek to coordinate actions to mitigate and prevent future supply chain disruptions and secure critical sectors and key products for our manufacturers. In the Pillar III, the Clean Economy Pillar, the countries will seek to expand investment opportunities, spur innovation, and improve the livelihoods of citizens as the partners unlock the region's abundant clean energy resources and substantial carbon sequestration potential. In the Fair Economy Pillar (Pillar IV), the countries will seek to level the playing field for businesses and workers within partner countries by preventing and combatting corruption, curbing tax evasion, and enhancing transparency, recognizing the importance of fairness, inclusiveness, the rule of law, accountability, and transparency.", US Department of Commerce, "Ministerial Statements for the Four IPEF Pillars: Trade; Supply Chains; Clean Economy; and Fair Economy," September 9, 2022.

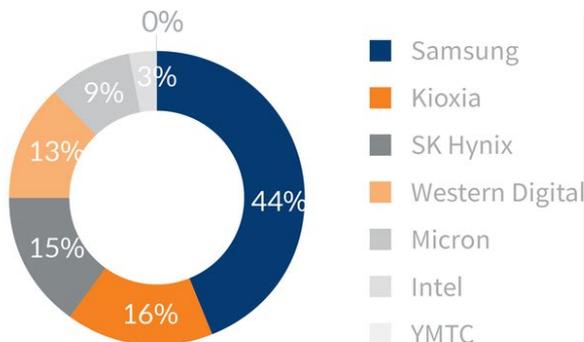
Semiconductors

In 2020, South Korea’s global semiconductor market share was 18.4%. It has ranked second in the world since 2013, only behind the United States. In particular, South Korea accounted for 56.9% of the global memory semiconductor market, with DRAM at 74% and NAND Flash at 60%, as shown in Figure 1. Korean-made memory semiconductors use the world’s best technology. South Korea continues to focus on R&D and investment in order to retain its competitive advantage. In addition, it is pushing to expand its foundry market share based on ultra-fine processing technology.¹⁶

Figure 1: South Korean companies’ global market share in NAND Flash and DRAM semiconductors in 2020

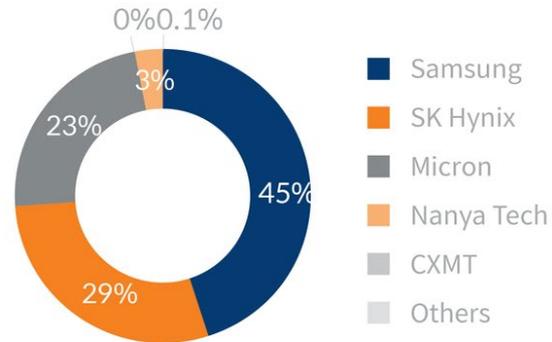
NAND FLASH MARKET SHARE IN BIT SHIPMENT 2020

Source: UBS, 2021



DRAM MARKET SHARE IN BIT SHIPMENT 2020

Source: UBS, 2021

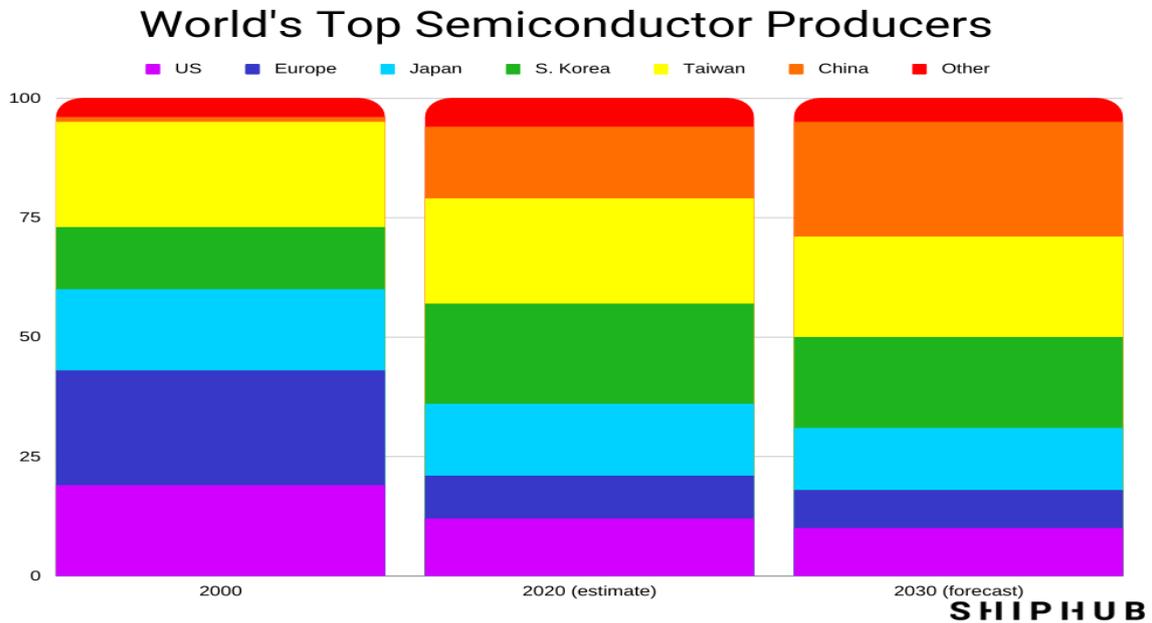


Source: "Asia's Dominance in the semiconductor industry," Miare Asset, www.am.miraeasset.com.hk.

Despite China’s relentless efforts to improve its production capacity competitiveness, South Korea is expected to remain one of the world’s semiconductor power houses in 2030, as shown in Figure 2 below.

16. "No. 1 Memory Semiconductor Industry in the World, Second Largest Semiconductor Producing Country," Invest Korea, available at: www.investkorea.org.

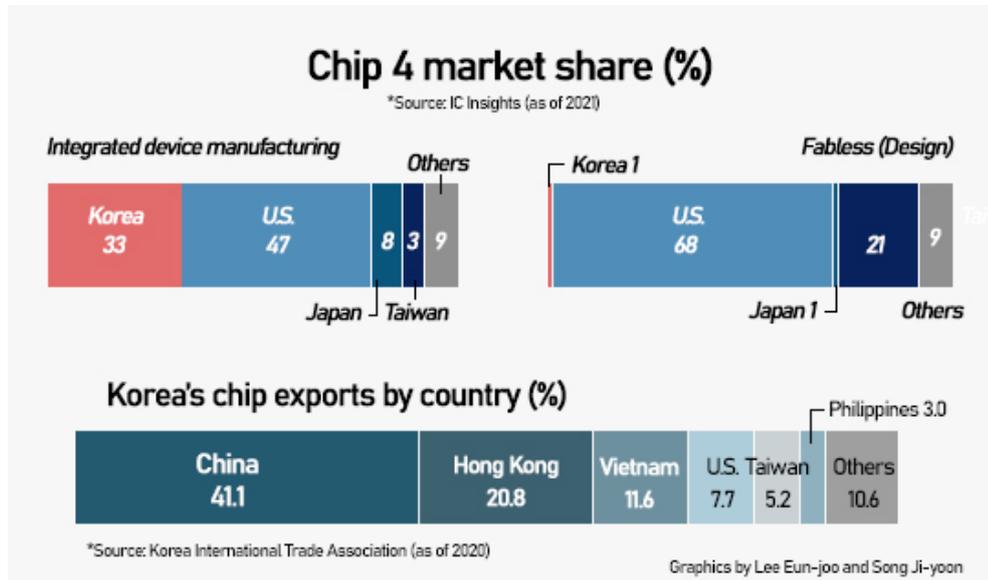
Figure 2: World's Top Semiconductor Producers, 2020–2030



Source: World's top semiconductor producers 2000–2030; data: SIA.

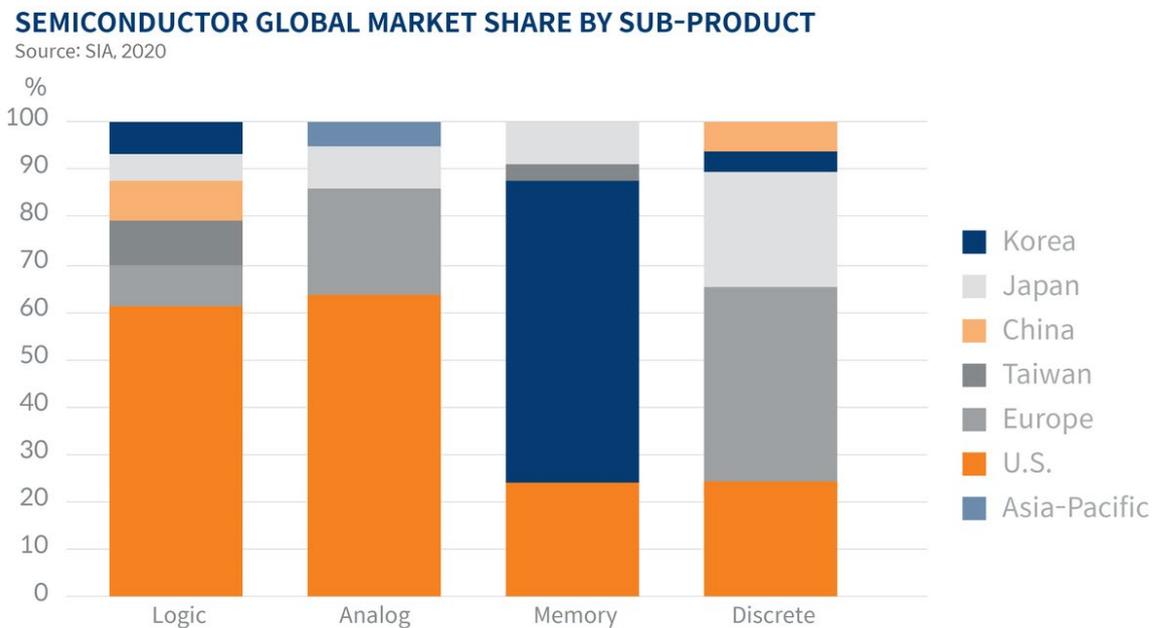
Among the major semiconductor manufacturers excluding China, also known as the “Chip 4” or “Fab 4”, South Korea is one of the dominant forces in integrated devices, as shown in Figure 3. By sub-product standards, as shown in Figure 4, South Korea is competitive in logic products and top in the memory semiconductor global market.

Figure 3: Chip 4 Market Share (%)



Source: "Seoul to lay out conditions for joining Chip 4 alliance as not ruin exports to China", Pulse by Maeil Business News, August 8, 2022.

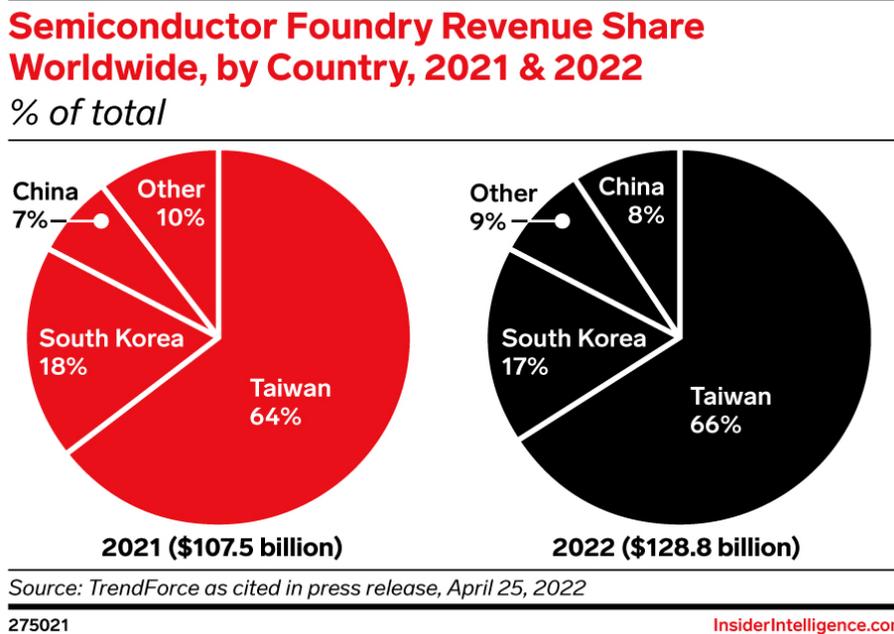
Figure 4: Semiconductor Global Market Share by Sub-product



Source : SIA 2020

Figure 5 shows that South Korea is another manufacturing force in the semiconductor foundry sector, despite Taiwan’s predominance. Taiwan is an outright leading force especially in this industry, but South Korea is responsible for 17–18% of global supply. This is also an area where China has been concentrating its R&D investment in recent times. Hence, South Korea is a major contributor to reinforcing foundry supply-chain resilience among the “Chip 4” and keeps China lagging behind despite its recent efforts to surpass South Korea.

Figure 5: Semiconductor Foundry Revenue Share Worldwide by Country, 2021 & 2022



Source: Insider Intelligence.

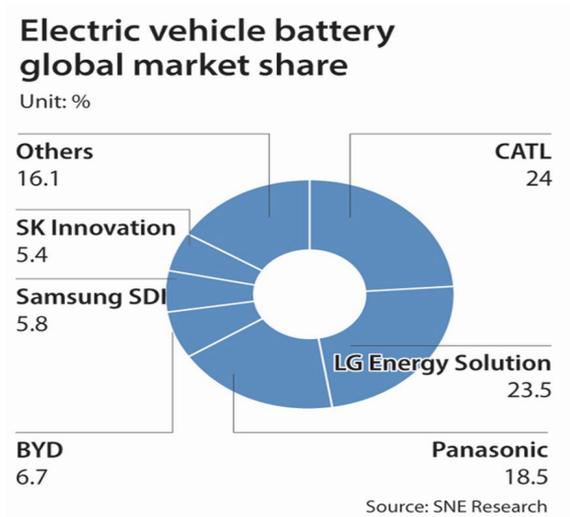
Electric vehicle batteries

Electric vehicle (EV) batteries are critical to the development of the green economy, as envisioned by IPEF, and semiconductors are another vital component in perfecting EVs. For this reason, South Korea has a strong say in shaping IPEF’s Pillar II (supply chain) and III (clean economy).

In 2020, three major Korean companies dominated the EV batteries global market, accounting for 34.7% of the global market share (see Figure 6). LG Energy Solution ranked second behind China’s CATL. Samsung SDI and SK Innovation’s share has been consistently on the rise. SK Innovation and LG Energy Solution will expand their manufacturing as they both agreed with the United States government to build plants in the country following the Yoon-Biden summit in May 2022. The aim is to offset China’s competitive rise as a result of what is perceived to be unfair practice

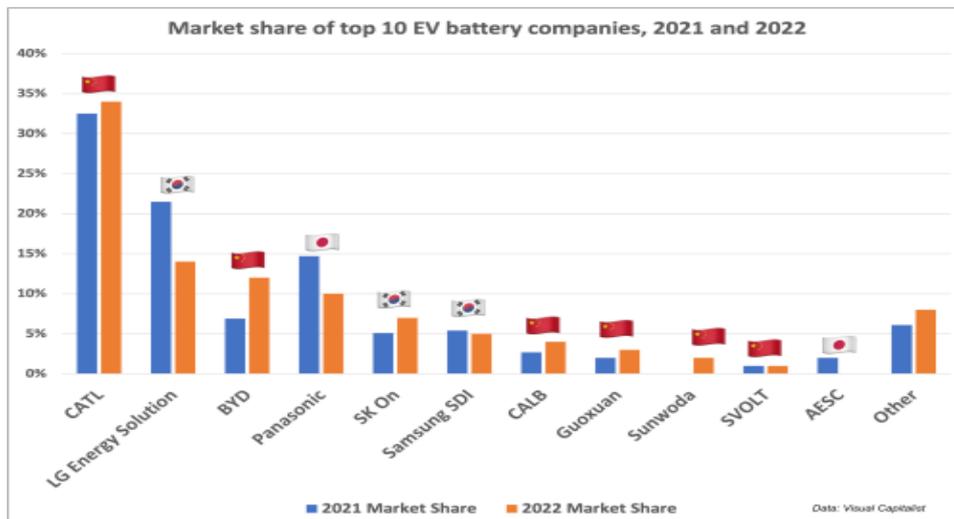
relating to its own subsidy policy. Companies such as LG Energy Solution were forced to look for other plant locations elsewhere as a result of China’s subsidization raising the threshold for non-tariff barriers against global EV battery producers. The Chinese government’s discrimination against LG Energy Solution naturally took a toll on its production in China, reducing its market share (as shown in Figure 7). In contrast, Chinese companies such as CATL, BYD, and CALB raised their market share in the span of two years.

Figure 6: Electric Vehicle Battery Global Market Share



Source: "Korean battery makers sell a third of EV batteries globally", Joong-ang Daily, February 1, 2021.

Figure 7: Market Share of Top EV Battery Companies, 2021 & 2022



Source: "Top 10 EV battery manufacturers all Asian companies; China accounts for 56% of market, Korea 26% and Japan 10%," October 9, 2022, Green Car Congress, www.greencarcongress.com.

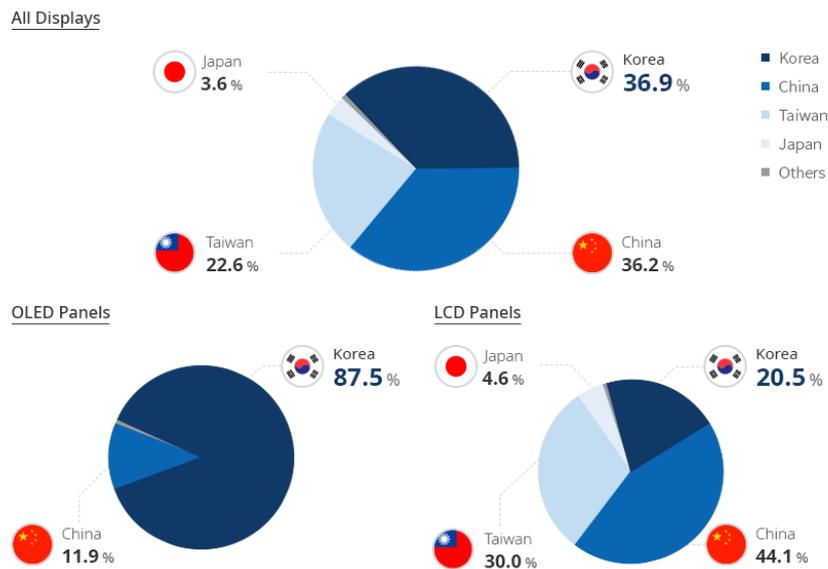
Regardless, Korean companies will continue to be one of the major suppliers of EV batteries and a force that will enhance the resilience of a global supply chain. This will be especially true for Korean enterprises, barring the IPEF’s inclusion of Chinese companies. Apart from Japan’s Panasonic, few IPEF eligible-nation companies can contribute to rebuilding a resilient supply chain in the field of EV batteries.

Display

Although China has made a big step in surpassing South Korea in the liquid crystal display (LCD) global market, South Korea has maintained its dominance in other sorts of panel displays such as organic light-emitting diodes (OLED) and light emitting diode (LED). China became the biggest LCD supplier in 2018 when Samsung Display decided to exit from production due to Samsung losing its competitive edge against China’s abundant cheap labor forces.

In sum, it was judged that the market values and commercial profits in other display panels were much greater than for LCD. As a result, South Korean companies reduced LCD production and converted to high value-added OLED. In other words, both Samsung Display and LG Display strategically reduced LCD production to expand OLED production. High value-added OLEDs are playing a key role in innovative products, such as foldable phones and rollable TVs. Their decision in hindsight proves to be the right one. Samsung Display is now the leading manufacturing force in the world in the field of small and medium-sized OLED, while LG Display has remained the leader in the large OLED area.

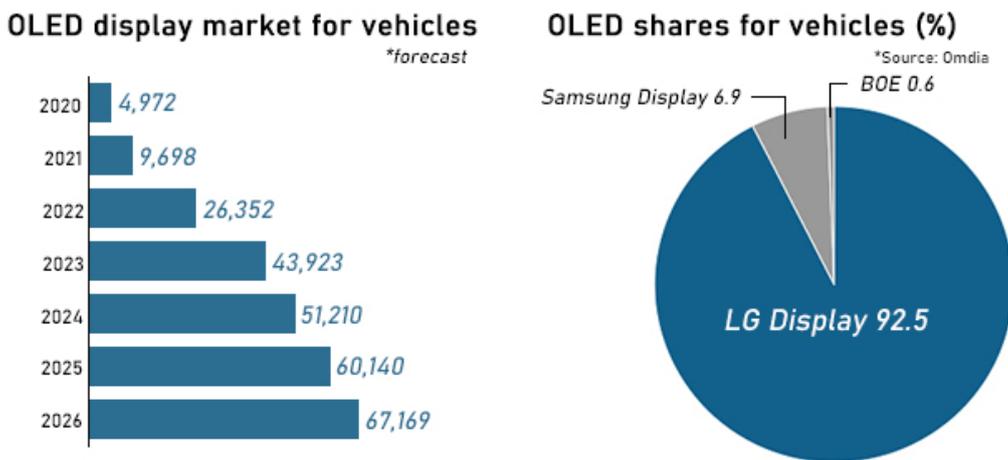
**Figure 8: South Korea’s Display Panels
Global Market Share (%)**



Source: Invest Korea, KOTRA, 2021, www.investkorea.org/.

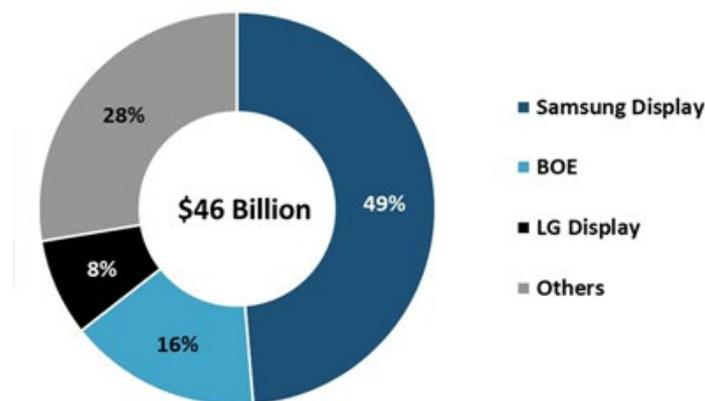
By applications, LG Display, for instance, dominates the supply of OLED display panels for vehicles, with 92.5% of the world market (see Figure 9). Samsung Display is well behind. However, in combination, South Korea supplies 99.4% of global consumption. Meanwhile, in smartphone display panels, Samsung Display is leading the charge with its 49% share of the global market (2021), while LG Display raises South Korea's world share to 57% by taking up 8% of the world market (see Figure 8).

Figure 9: OLED Display Markets for Vehicles and OLED Shares for Vehicles



Source: "Korean panel majors eye boon in OLED car dashboard touchscreens," Pulse by Maeil Business News, February 14, 2021.

Figure 10: Smartphone Display Panel Market Share in 2021 by Companies



Source: Strategy Analytics Handset Component Technologies Service

Source: "OLED driving smart phone display panel market in 2021 – analyst", OPTICS.org, March 24, 2022, <https://optics.org/news/13/3/42>.

Small modular reactors

Small modular reactors (SMRs) is one area in which South Korea is supposedly leading the pack of a small number of nations that can produce them. Russia and China are the other competitors. Recognizant of South Korea's nuclear power-plant-building capacity and capability, the issue of cooperation between the United States and South Korea was part of the official agenda at the Yoon-Biden summit in May 2022. On the cooperation question with respect to building small modular reactors, the joint statement released after the summit read: "The two leaders recognize the importance of nuclear energy as a critical and reliable source of carbon-free electricity, an important element to grow our clean energy economy, and an integral part of enhancing global energy security."

With this recognition, the two leaders made it official that the two countries will commit to "greater nuclear energy collaboration and accelerating the development and global deployment of advanced reactors and small modular reactors by jointly using export promotion and capacity building tools and building a more resilient nuclear supply chain." They went further with a promise to "engage in global civil-nuclear cooperation in accordance with the highest standards of nuclear nonproliferation, including the IAEA Additional Protocol as the standard for both international safeguards and for nuclear supply arrangements."

They identified the legal and institutional grounds to facilitate cooperation, as outlined above. The so-called "ROK-U.S. Memorandum of Understanding on Nuclear Technology Transfer and Export Cooperation," the two presidents acknowledged, could provide a solid foundation for strengthened cooperation in the US, South Korean and overseas nuclear markets and the High-Level Bilateral Commission, "to further cooperation for spent fuel management, nuclear export promotion, assured fuel supply and nuclear security." They pre-empted any concerns that might have been raised by the international community. Their nuclear cooperation, in other words, would fully respect the institutional requirements and protocol demands through an international standard. President Biden also displayed his support for South Korea joining the US-led Foundational Infrastructure for Responsible Use of Small Modular Reactor Technology (FIRST) program.¹⁷

Following the summit in 2022, Korean conglomerates announced their action plans for cooperating with their American counterparts. SK, for instance, in May 2022, declared that "a wide-ranging partnership with Bill

17. The issue of nuclear cooperation was first raised during the US-South Korean summit in May 2021. "White House Summit / US and South Korea Announce Plans to Expand Nuclear Energy Cooperation", NUCNET, May 25, 2021, available at : www.nucnet.org; South Korea's decision to formally join FIRST was officially made on May 20, 2022. "Nuclear Cooperation / US and South Korea Pledge to Accelerate Development of Advanced Reactors and SMRs," NUCNET, May 23, 2022, available at : www.nucnet.org.

Gates-founded startup TerraPower” had been launched. The two companies would pursue close collaboration, “with a focus on small reactors, spanning technology development and commercialization.” SK Innovation will lead the charge on SK’s part.¹⁸

Hyundai Engineering also announced a plan to actively seek cooperation with its US counterparts. To this end, it sets up a team of about seventy design and project management personnel, also in May 2022. It wants to cooperate on SMRs and other next-generation nuclear systems. Samsung Heavy Industries announced earlier, in April 2022, that it had reached a deal with Denmark’s Seaborg Technologies “to develop floating nuclear plants, applying existing shipbuilding technology to build a new type of reactor.”¹⁹ Doosan Enerbility, a leader in South Korea’s nuclear industry, announced its willingness to restart SMR production, which it had previously abandoned because of US failure to provide the institutional and protocol assistance that it now committed to provide in order to develop bilateral cooperation. It announced an investment of “\$4 billion in new energy technologies over the next five years.” Doosan Enerbility’s prospects for success appears to be good given its capital and business ties with US-based NuScale Power, a major supplier of key equipment for its own SMRs.²⁰

18. “South Korea Bets Big on Small Reactors in Return to Nuclear”, *Nikkei Asia*, June 3, 2022.

19. *Ibid.*

20. *Ibid.*

Strategic Implications for South Korea

South Korea for now and in the near future will prevail as one of the major manufacturers in the technology areas vital to the development of 5G, artificial intelligence (AI), clean economy, and other areas pertaining to the Fourth Industrial Revolution. While it is still dependent on the United States for original technologies and on Japan for sophisticated plant and equipment, it is the main producer and supplier of memory semiconductors, EV batteries, OLED panels, and potentially SMRs.

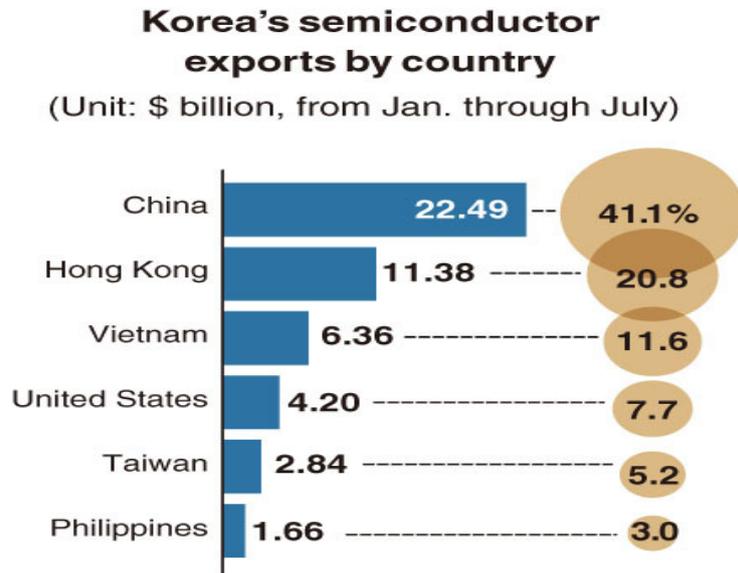
The Fourth Industrial Revolution is being driven by China, South Korea, Taiwan and other countries. This will be especially true if and when the United States implements the new supply-chain resilience plan it has envisioned for the aforementioned industries. Exclusion of China will mean that the US and other Indo-Pacific strategy participants, including Europe, will have to rely on South Korea's supply.

Conversely, South Korea will be challenged by the likely reduction in its share in the Chinese market. For instance, it must seek an alternative market for its high-end semiconductors if the US-led IPEF and "Chip 4" alliance work out as planned. In 2020, South Korea exported about 41.1% of its semiconductors to mainland China and approximately 20.8% to Hong Kong. Altogether, 62% of its semiconductor exports are bound for China while its export market in the United States stands at a mere 7.7% (see Figure 11).

Also, under restrictions adopted on October 7, 2022, the US requires authorization for exporting technology, manufacturing equipment and personnel for producing cutting-edge chips, including those used in supercomputers – in effect, banning such exports. Since the restrictions also apply to equipment made by foreign companies using US technology, South Korean companies (Samsung and SK Hynix) are directly affected.²¹ With 60% of their semiconductor product exports bound for China, their profits will be severely hit. They have managed to get a one-year exemption but it remains to be seen what will happen next.

21. Furthermore, the US is seeking to extend the controls to companies in other countries (such as Japan and the Netherlands) although they produce chipmaking equipment that does not rely on US technology. It is unclear at the time of writing whether the pressure will succeed.

Figure 11: South Korea’s Semiconductor Exports by Country



Source: Korea International Trade Association

Source: Korea International Trade Association

Hence, South Korea must proactively engage in rebuilding a resilient supply chain for high-end technologies. As one of the major producers of these technology components, it has the leverage to do so.

First of all, South Korea must set its own goals and agenda for supply-chain resilience. It must identify where it stands in the supply chains and the role it can play to increase the resilience of supply chains. Its manufacturing capabilities and capacities both empower it to play a leading role in shaping a new supply chain. It therefore has all the rights and authority to set the agenda. The reality is that, if the Fourth Industrial Revolution lacks a sufficient supply of technological components from China and South Korea, it will be difficult to sustain. It is through this advantage that South Korea could set an agenda that would serve its national interests and benefit its own industrial development. After all, South Korea is the manufacturer, not the United States and others.

Secondly, South Korea can exert leverage to achieve its expectations in the IPEF and “Chip 4.” The Korean government justified its early decision to join these groupings based on the opportunity that it had never had in the international multilateral venues. This was a chance to become a “rule-maker”. With all the leverages that it enjoys through global dependence on its supply of key technological components, South Korea is now a natural leader in the world of semiconductors, display panels, EV batteries and SMRs. In the setting of agendas and new rules for the IPEF, “Chip 4”, etc, it has the clout to work things to its own advantage.

While the United States and Japan are the primary original sources of technology, and plant and equipment, respectively, South Korea applies and assembles them for the end use of industries. Its production capacity gives it leverage over the flow of these end-use products in a global supply chain that the United States is attempting to amend. Subtracting South Korea's market share in memory semiconductors, EV batteries and panel displays would disrupt US efforts in building a new supply chain with greater resilience. South Korea's alignment with the US and loss of the China market means it must have rights and a strong say in the organization of resilient supply chains. It must use the bargaining power given by its manufacturing power *vis-à-vis* the US to the max in order to offset its market loss in China.

Thirdly, South Korea must seek assurances from the United States in relation to China's unconstrained coercion. To date, the China factor has greatly dictated South Korea's decision-making process. It has taken China's possible response too much into account in reaching its own verdict on issues pertaining to its own security interests and the strategic interests of the South Korea-US alliance. This has constrained it and prevented it from acting as proactively in the interests of the alliance as it would have liked. For this reason, South Korea's behavior in relation to the alliance has often bewildered the United States.

South Korea can only overcome this "China phobia" by securing greater assurance from the United States. To this end, the US must abide by its stated commitments to defend allies, friendly nations and like-minded states against Chinese coercion. In the 2021 Interim National Security Strategic Guidance, the United States declared its commitment to "support China's neighbors (...) in defending their rights to make independent political choices free of coercion or undue foreign influence." Moreover, the 2021 March QUAD leaders' joint statement referred to the US assurance "to strive for a region (...) unconstrained by coercion." Furthermore, legislation such as the "Countering Economic Coercion Act of 2022 (S.4514)" will reassure allies such as South Korea that are in a constant dilemma in relation to China.

Lastly, South Korea must work out the best way in which it can contribute to the world economy and security, fulfilling the Yoon government's foreign policy whereby South Korea will become a "Global Pivotal State."²² It must use its advantages to their full extent. Beijing is now feeling the pressure from the United States and its allies with respect to rebuilding global supply chains and similar schemes. In Chinese President Xi Jinping's address at the 20th Chinese Communist Party Congress in

22. Y. Suk-yeol, "South Korea Needs to Step Up: The Country's Next President on His Foreign Policy Vision", Foreign Affairs, February 8, 2022.

October 2022, China presented its vision of countermeasures by re-emphasizing the upholding of the dual circulation strategy and becoming technologically self-reliant. Since 2021, China has also made explicit its concerns over the outside world politicizing and securitizing economic issues.

Against this background, South Korea does not necessarily have to be too conscious of China's response and subsequent countermeasures should it decide to go along with the United States and allies against China. Instead, it must find ways to constructively contribute to the interests of its allies and partners, and the world economy. Without full commitment and determination, it will lose a fantastic opportunity to become a rule-maker and "Global Pivotal State." This is a once-in-a-lifetime opportunity for South Korea to maximize its interests while minimizing potential loss.

Policy Recommendations for South Korea and France

What South Korea can gain from the IPEF and “Chip 4” is not feasible, however, without cooperation with allies and partners. It must therefore pursue cooperation with them. In the case of France, there are abundant opportunities for bilateral cooperation in US-led economic security initiatives.

First of all, South Korea and France must cooperate to manage the United States. The US government and Congress are not overly concerned about the consequences of their decisions for allies and partners. The passing of the Inflation Reduction Act (IRA) last July, for instance, speaks volumes. French President Emmanuel Macron persuaded his American counterpart to acknowledge the “flaws” in the IRA at their last encounter in December 2022. Since July, countries concerned about the IRA responded individually rather than collectively. Any individual state will feel overwhelmed in confronting alone the White House, the US government and Congress. It will be better for them to collectively challenge and manage them. Such bills are almost impossible to amend after they become law.

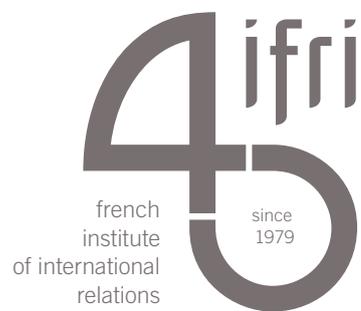
Secondly, South Korea and France should lead the charge in building a collective mechanism to manage and control the United States. France has had a long diplomatic tradition in dealing with the US. South Korea, as mentioned above, is now in a good position to exercise political and economic leverage, given its role as a major producer and supplier of critical technological components for the Fourth Industrial Revolution. A close communication channel between it and France is a prerequisite for the success of such efforts. Both countries have been seeking a ground for cooperation, and now they are presented with it. They must seize the opportunity before it is too late.

To this end, South Korea and France should make the United States more aware of the external effects of its legislation. This is particularly the case when legislative activities are directly and closely related to the interests of allies and like-minded states as well as those of the alliance. The mere introduction of a bill can have a butterfly effect, yet this is often neglected in the congressional debates. In short, the United States should take into account the repercussions of its legislative moves on its allies’ national interests and on foreign relations.

Thirdly, South Korea and France should share information with respect to developments pertaining to shaping the IPEF in the United States. Strong communications that give a head up to allies and friends about America's policy decisions at the legislative and executive levels are required. There are various strategic dialogues between South Korea, France, the United States and allies, but their focus is overwhelmingly issue-specific. Without prior knowledge about the bases for US decision-making, the announcement of a decision strikes allies as unilateral.

Lastly, South Korea and France must work together to ensure they are not negatively affected by the growing protectionism of the United States. The US Congress and the White House are seemingly entrapped in an all-out war on China, competing to outhawk each other. This leads to lack of consideration of the external consequences of their actions, as in the case of the IRA. With presidential elections coming in 2024 in Taiwan and the United States, many more politically motivated moves like the IRA are possible; for example, there is growing speculation that export control authority might be transferred from the US Department of Commerce to Defense Department. If that were to materialize, technology transfer to allies and partners would be severely controlled and negatively affect the world economy.

Together, South Korea and France should persuade the United States that its export control laws should be favorable to the interests of its allies. The allies should also be welcomed and included, and the laws be more lenient and benign for the allies. One of the benefits that America can expect is that much less constrained technology transfer will advance American interests in technology and defense. Because the US lacks sufficient stockpiles in semiconductors, for instance, the pressure to keep inventories in full stock, as evidenced in Congress introducing in June 2022 the "Defense Semiconductor Stockpile Act" (H.R. 8104), could be reduced. Export control regulations are a sensitive matter; the prerequisite for waiver is confidence and trust. The required level of confidence and trust can also be met through cooperation and exchanges. South Korea and France must work together to effectively restrain the United States from further drifting toward protectionism.



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